

**Notice of Allowability**

Application No.

09/767,050

Examiner

Cicely Ware

Applicant(s)

FRANK, COLIN D.

Art Unit

2634

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 11/30/2004.
2. ☒ The allowed claim(s) is/are 15-29 renumber as 1-15 respectively.
3. ☒ The drawings filed on 30 November 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

#### *Drawings*


2. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed

### 3. Amendments to the Claims

- a. Claim 15, line 1, delete "mimimum", insert "minimum".
- b. Claim 16, line 7, insert "wherein  $N$  denotes the length of this code,  $I_{or}$  denotes the power per chip received from the serving base station,  $\Omega$  denotes the normalized covariance matrix for both  $\mathbf{R}_0$  and  $\mathbf{R}_1$ ,  $E$  is the evaluation of the mean and covariance of the observation vectors  $\mathbf{R}_0$  and  $\mathbf{R}_1$ ".
- c. Claim 17, line 8, insert "wherein  $N$  denotes the length of this code,  $I_{or}$  denotes the power per chip received from the serving base station,  $\Omega$  denotes the normalized covariance matrix for both  $\mathbf{R}_0$  and  $\mathbf{R}_1$ ,  $E$  is the evaluation of the mean and covariance of the observation vectors  $\mathbf{R}_0$  and  $\mathbf{R}_1$ ".

Art Unit: 2634

- d. Claim 22, line 1, delete "mimimum", insert "minimum".
- e. Claim 22, line 9, insert "wherein  $f_0$  and  $f_1^*$  are two channel vectors,  $N$  denotes the length of this code,  $I_{or}$  denotes the power per chip received from the serving base station,  $\Omega$  denotes the normalized covariance matrix for both  $R_0$  and  $R_1$ ,  $E$  is the evaluation of the mean and covariance of the observation vectors  $R_0$  and  $R_1$ ,  $\Gamma_Q$  denotes the correlation matrix".
- f. Claim 26, line 1, delete "mimimum", insert "minimum".
- g. Claim 26, line 9, insert "; wherein  $f_0$  and  $f_1^*$  are two channel vectors,  $N$  denotes the length of this code,  $I_{or}$  denotes the power per chip received from the serving base station,  $\Omega$  denotes the normalized covariance matrix for both  $R_0$  and  $R_1$ ,  $E$  is the evaluation of the mean and covariance of the observation vectors  $R_0$  and  $R_1$ ,  $\Gamma_Q$  denotes the correlation matrix".



**STEPHEN CHIN**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

### REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a linear minimum mean-square error receiver. Prior art references show similar methods but fail to teach: **"computing a first inner product of a vertical concatenation of the first and second observation vectors with a first receiver vector to produce a first symbol estimate; and computing a second inner product of the vertical concatenation of the first and second observation vectors with a second receive vector to produce a second symbol estimate"**, as in claim 15; **"filter a received signal with a time reverse of an upper component, of a receiver vector to yield a first output, filtering the received signal with a time reverse of a lower component of the receiver vector, to yield a second output"**, as in claims 22 and 26.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

Art Unit: 2634

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

*Cicely Ware*

cqw  
May 24, 2005